CLAIMS

1. A module with built-in circuit elements,

wherein a plurality of substantially two-dimensionally formed wirings are stacked with an electrically insulating material interposed therebetween; said electrically insulating material is made of a mixture containing at least a filler and an electrically insulating resin; and one or more circuit elements are electrically connected to the wirings and at least part of the circuit elements is embedded in the electrically insulating material; and

wherein a heat sink member having higher thermal conductivity than that of the electrically insulating material is included, and the heat sink member and at least high heat generating circuit element among the circuit elements overlap each other when viewed in a laminating direction of the wirings, the high heat generating circuit element rising to higher temperature than other components of the module, while the module is in use.

2. The module with built-in circuit elements according to claim 1,

wherein the heat sink member and the high heat generating circuit element are opposed to each other in the laminating direction of the wirings.

3. The module with built-in circuit elements according to claim 1 or 2,

wherein the heat sink member is disposed on a surface of the electrically insulating material.

4. The module with built-in circuit elements according to claim 3,

wherein the area of the heat sink member is larger than that of the high heat generating circuit element when viewed in the laminating direction of the wirings.

5. The module with built-in circuit elements according to claim 1 or 2,

wherein the high heat generating circuit element is disposed on a surface of the electrically insulating material.

6. The module with built-in circuit elements according to claim 1,

wherein the heat sink member is electrically connected to the wirings.

7. The module with built-in circuit elements according to claim 6,

wherein an electrically conducting member for electrically connecting the plurality of wirings to one another is disposed close to the electrically insulating material; and

which has a portion where the electrically conducting member and the heat sink member are heat-conductively connected.

8. The module with built-in circuit elements according to claim 7,

wherein the electrically conducting member is a through hole.

9. The module with built-in circuit elements according to claim 7,

wherein the electrically conducting member is an inner via hole.

10. The module with built-in circuit elements according to claim 6,

wherein the heat sink member is in the form of a chip part.

11. The module with built-in circuit elements according to claim 10,

wherein the heat sink member contains a metal as a chief component.

12. The module with built-in circuit elements according to claim 10,

wherein the heat sink member contains ceramics as a chief component.

13. The module with built-in circuit elements according to claim 1,

wherein the thermal conductivity of the heat sink member is not less than three times that of the electrically insulating material.

14. The module with built-in circuit elements according to claim 1,

wherein the high heat generating circuit element and the heat sink member are disposed such that the area of a portion where they overlap each other when viewed in the laminating direction of the wirings is 40% or more of the area of the high heat generating circuit element when viewed in the laminating direction of the wirings.

15. The module with built-in circuit elements according to claim 1,

wherein the distance between the high heat generating circuit element and the heat sink member exceeds 0 mm and is 0.5 mm or less.

16. The module with built-in circuit elements according to claim 1,

wherein the high heat generating circuit element and the heat sink member are in close contact with each other through at least the electrically

insulating material.

17. The module with built-in circuit elements according to claim 16,

wherein at least one of the wirings is further located between the high heat generating circuit element and the heat sink member.

18. The module with built-in circuit elements according to claim 1,

wherein the heat sink member is thicker than the wirings.

19. The module with built-in circuit elements according to claim 18,

wherein the thickness of the heat sink member is 0.1 mm or more and 1.0 mm or less.

20. The module with built-in circuit elements according to claim 1,

wherein the heat sink member is a heat sink circuit element, which is among said circuit elements and has higher thermal conductivity than the electrically insulating material; and

wherein said heat sink circuit element and the high heat generating circuit element among the circuit elements overlap each other when viewed in a laminating direction of the wirings, the high heat generating circuit element rising to higher temperature than other components of the module, while the module is in use.

21. The module with built-in circuit elements according to claim 20,

wherein the heat sink circuit element and the high heat generating circuit element are opposed to each other when viewed in the laminating direction of the wirings.

22. The module with built-in circuit elements according to claim 20 or 21,

wherein the heat sink circuit element is disposed on a surface of the electrically insulating material.

23. The module with built-in circuit elements according to claim 22,

wherein the area of the heat sink circuit element is larger than that of the high heat generating circuit element when viewed in the laminating direction of the wirings.

24. The module with built-in circuit elements according to claim 20 or 21,

wherein the high heat generating circuit element is disposed on a surface of the electrically insulating material.

25. The module with built-in circuit elements according to claim 20, wherein the heat sink circuit element is a resistor.

26. The module with built-in circuit elements according to claim 20, wherein the heat sink circuit element is a capacitor.

27. The module with built-in circuit elements according to claim 20, wherein the heat sink circuit element is an inductor.

28. The module with built-in circuit elements according to claim 20, wherein the heat sink circuit element is a laminated body composed of a capacitor and an inductor.

29. The module with built-in circuit elements according to claim 28, wherein the laminated body is disposed such that the capacitor is located in the vicinity of the high heat generating circuit element.

30. The module with built-in circuit elements according to claim 26 or 28, wherein the capacitor is a ceramic capacitor.

31. The module with built-in circuit elements according to claim 26 or 28, wherein the capacitor is a solid electrolytic capacitor.

32. The module with built-in circuit elements according to claim 27 or 28, wherein the inductor has a laminated structure composed of windings and a magnetic substance and takes the form of a thin sheet.

33. The module with built-in circuit elements according to claim 27 or 28, wherein the inductor has a laminated structure composed of windings and a magnetic substance, and the windings are sheet-like coils formed by plating.

34. The module with built-in circuit elements according to claim 27 or 28, wherein the inductor has a laminated structure composed of windings and a magnetic substance and the magnetic substance comprises at least a thin metallic body.

35. The module with built-in circuit elements according to claim 20,

wherein the thermal conductivity of the heat sink circuit element is not less than three times that of the electrically insulating material.

36. The module with built-in circuit elements according to claim 20, wherein the high heat generating circuit element and the heat sink circuit element overlap each other such that the overlapping area when viewed in the laminating direction of the wirings is 40% or more of the area of the high heat generating circuit element when viewed in the laminating direction of the wirings.

37. The module with built-in circuit elements according to claim 20, wherein the distance between the high heat generating circuit element and the heat sink circuit element exceeds 0 mm and is 0.5 mm or less.

38. The module with built-in circuit elements according to claim 20, wherein the high heat generating circuit element is in close contact with the heat sink circuit element through at least the electrically insulating material.

39. The module with built-in circuit elements according to claim 38, wherein at least one of the wirings is further located between the high heat generating circuit element and the heat sink circuit element.

40. The module with built-in circuit elements according to claim 20, wherein the heat sink circuit element is thicker than the wirings.

41. The module with built-in circuit elements according to claim 40, wherein the thickness of the heat sink circuit element is 0.1 mm or more and 1.0 mm or less.